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EXAMINER	
MITCHELL, KATHERINE W	
ART UNIT	**PAPER NUMBER**
3677	

DATE MAILED: 09/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)
	10/031,411	SIGNAROLDI ET AL.
	Examiner	Art Unit
	Katherine W Mitchell	3677

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 14 June 2004.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-18 and 22-46 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-18 and 22-46 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 18 January 2002 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 6/14/04 KWM

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 1 line 9, claim 22 line 8, claim 30 line 9, line 34 line 10, line 35 line 9, line 42 line 7, claim 43 line 8, claim 44 line 9, claim 45 line 11, and claim 46 line 9 all recite the limitation "the forces". There is insufficient antecedent basis for this limitation in the claims.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-6 and 22-30 and 34-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nolan Jr, DE 2118360, hereafter called Nolan in view of Shell, GB 1107541, hereafter called Shell, and Lynch USP 4986697. Examiner has provided applicant with a translation of Nolan, as the document was cited on the IDS without a translation, and all page and line numbers refer to this translation.

Re claims 1-6 and 22-30 and 34-46: Nolan teaches a pipe laying vessel and method comprising (page 3, 2nd, 6th, and 7th paragraphs, Figures) an upwardly extending tower (28,68) with a plurality of guiding element rollers (36), spaced along the pipeline path and defining lateral path limits, located such that the rollers allow some bending of the pipeline as it passes thru the lower guide

arrangement (page 5, last 2 paragraphs – top 2 paragraphs page 6, figures, paragraph noted /25 on page 11). However, Nolan does not teach a means for monitoring the forces, including a load cell, applied to the pipeline by rollers of the lower guide arrangement. Shell teaches in page 1, col 2, line 77 – page 2, col 1, line 5, page 5 col 1 lines 15-43, and page 7, col 2, lines 67-93 that it is important to measure and control the pipeline bending when laying the pipeline from a floating vessel, but no specific means for measuring the forces are disclosed. Lynch teaches a method of laying pipeline from a barge which employs load and position sensing means associated with guide rollers to prevent damage to a pipe when the pipe is being laid in a curve in col 3 lines 16-32, and col 8 lines 60-61 disclose that the sensing means can be a load cell.

Therefore, it would have been obvious to one of ordinary skill in the art, having the teachings of Nolan and Shell and Lynch before him at the time the invention was made, to modify Nolan as taught by Shell and Lynch to include load sensing means such as load cells to measure and control the pipeline bending when laying the pipeline from a floating vessel, in order to lay pipelines in a catenary curve in the ocean without damage to the pipeline. One would have been motivated to make such a combination because damage-free pipelaying in different conditions, such as pipe size, bend, water currents would have been obtained, as taught/suggested by Lynch in col 3 lines 30-48 and Shell page 5 col 1 lines 31-42.

pwm Further Re claim 2: Guide rollers including axes of rotation inclined toward one another in a plane perpendicular to the tower, are taught in Nolan Fig 6.

Further Re claims 3-4 and 6: Guide rollers freely rotatable on bearings and extending at least ¼ revolution, and/or substantially all around the path of the pipeline are shown in Nolan Figs 9 (176, 178, 180) and Fig 10 (36) as well as discussed on page 11 1st two paragraphs and claim 9, page 25.

Further Re claims 5 and 45-46: A flared tower as described is shown in Nolan Fig 3 and 12a-12d. The lower guide assembly is considered to include everything below bracketed section {34] in Fig 1. The angle of flare increases in the direction of pipeline travel during laying in the section between "68" and "88".

Further Re claims 24-25 and 36-41: Adjusting the vessel operation or pipeline operation in dependence upon the monitoring is taught by in Shell page 7 col 2 lines 67-93 and page 1 col 2 lines 77-page 2 col 1 line 5. The "movement of the vessel" would inevitably involve the speed or direction of the travel of the vessel.

Further Re claims 27 and 35: A control station of some type is inevitably required for load cells to monitor forces and provide data for operation adjustments.

Further Re claims 28-29: Lynch teaches in col 7 line 37 - col 8 line 53 and Fig 9 that the force monitoring means' signals can be used to operate a piston and cylinder (piston rod 222 of hydraulic actuator 220) arrangement via a hydraulic supply (254) and control valve (258) station.

Further Re claims 30 and 34 and 42-43: Associating force monitoring means with guide rollers has been discussed as taught by Shell above. It would have been considered obvious to one of ordinary skill in the art, at the time the

invention was made, to have had monitoring means on respective sets of rollers, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8, especially since a bending pipe would be expected to have varying forces along its length and thus multiple measurements would obviously be needed.

4. Claims 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nolan in view of Shell and Lynch as applied above and further in view of standard bearing design as documented by the USPTO classification definitions for Class 384, Bearings. Examiner's classification schedule was printed in Dec 2000, but the class 384 classification codes have been in use since at least 1996. Nolan in view of Shell and Lynch as applied above teaches all the elements except resilient bearings. Examiner took Official Notice that resilient bearings are a known bearing design and the choice of bearing properties would be a design choice based on application parameters. Applicant has requested support, and examiner cites the USPTO Classification Schedule for Bearings. Subclasses 10, 37, 119, 125, 196, 198, 202, 215, 231, and numerous other subclasses provide for resilient roller bearings; subclasses 24, 38, 57, 107, 142, 178-180, 197, 263-264, and numerous other subclasses provide for resistant to displacement parts. It would have been obvious to one of ordinary skill in the art, having the teachings of Nolan and ordinary skill in the art before him at the time the invention was made, to modify Nolan in view of Shell and Lynch as applied above to include resilient bearings resistant to displaceable as required in

order to obtain bearings suitable for real-world conditions that do not lock up or prematurely fail when forces not parallel to the bearing axis are applied. Further, It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have selected bearings with resilience and resistance to displacement in the range required to handle large pipes being laid in the ocean, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Shell discloses in col 2 page 1 lines 77-82 that the tension on the pipeline must be within a preselected range to result in bending and stress levels on the pipeline within a permissible level, bearing resilience and resistance to displacement would inevitably vary to meet the requirements of the application. One would have been motivated to make such a combination because longer life and lower maintenance costs of both the bearings and pipeline would have been obtained, particularly important when at sea where unlimited spare parts are not available.

5. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nolan in view of Shell and Lynch as applied above in view of common knowledge in the art, as further documented by Brown, EP 000657670 A2.

Re claims 12-14: Adjustable tower inclination is taught in pages 10-12, 19-20 and Figs 12a-12d and claim 11. The lower guide arrangement is secured to the tower assembly in Nolan Figs 12a-12d, and Shell Figs 7,8. Once the tower inclination is suitable, it is obviously fixed in place as shown in Nolan Figs 12a-12d. The exact angle of incline would be a design choice based on application

parameters. Applicant has requested a reference in support of this. Examiner believes that Nolan shows this, but is also providing Brown as additional documentation. Brown in col 7 lines 40-43 teach that the tower inclination is adjustable and can also be fixed at between 0 and 15 degrees from vertical, which would be a 75 to 90 degree inclination from horizontal, well within applicant's range. Note that Nolan Figs 12a-12d obviously show an angle between 45-90 degrees to the horizontal. It would have been obvious to one of ordinary skill in the art, having the teachings of Nolan in view of Shell and Lynch as applied above and ordinary skill in the art as evidenced by Brown before him at the time the invention was made, to modify Nolan in view of Shell and Lynch as applied above to include adjustable tower inclination as required in order to obtain pipe laying at different depths and for varying distances, which would result in angular differences. One would have been motivated to make such a combination because flexibility to adapt to site conditions would have been obtained, particularly important when at sea where site control is difficult to accurately predict or control.

6. Claims 15-18 and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nolan in view of Shell and Lynch as applied above and further in view of Smith US 3555835. As discussed above, Nolan in view of Shell and Lynch as applied above teaches all the elements except guide rollers positioned below sea level. Smith shows in Figs 1,2, and 4 and col 3 lines 13-27 that multiple set of guide rollers (42,44,46) are evenly spaced and used below sea level to resist lateral movement and more easily form a curve when the pipe is

being guided thru the water. The spacing and number of sets would be determined by pipe diameter, laying radius, and site conditions. It would have been obvious to one of ordinary skill in the art, having the teachings of Nolan in view of Shell and Lynch as applied above and Smith before him at the time the invention was made, to modify Nolan in view of Shell and Lynch as applied above to include multiple guide rollers undersea as taught by Smith in order to resist lateral movement and more easily form a curve when the pipe is being guided thru the water. One would have been motivated to make such a combination because sea currents and ship movement could result in problems without guide rollers in the water.

7. Claims 1-6 and 5-18 and 22-33 and 34-46 are also rejected under 35 U.S.C. 103(a) as being unpatentable over Nolan in view of Jones et al. USP 3668878.

8. Re claims 1-6 and 5-18 and 22-33 and 34-46: Nolan teaches a pipe laying vessel and method comprising (page 3, 2^{nd}, 6^{th}, and 7^{th} paragraphs, Figures) an upwardly extending tower (28,68) with a plurality of guiding element rollers (36), spaced along the pipeline path and defining lateral path limits, located such that the rollers allow some bending of the pipeline as it passes thru the lower guide arrangement (page 5, last 2 paragraphs – top 2 paragraphs page 6, figures, paragraph noted /25 on page 11). However, Nolan does not teach a means for monitoring the forces, including a load cell, applied to the pipeline by rollers of the lower guide arrangement.

Jones et al. teaches that "v-shaped roller assemblies 85 may be provided with force monitoring load cells" in col 23 lines 56-60, to minimize pipeline stresses and tension. Col 53 lines 51-73 further described the benefits of monitoring forces to enhance operator control and prevent serious deviations in forces, and that the monitoring data can be used to adjust parameters to ensure proper pipe laying. It would have been obvious to one of ordinary skill in the art, having the teachings of Nolan and Jones et al. before him at the time the invention was made, to modify Nolan to include guide rollers monitored for forces applied to the pipeline as taught by Jones et al. in order to insure pipe is laid properly and that excessive forces don't stress the pipeline. One would have been motivated to make such a combination because monitoring forces would prevent expensive maintenance problems later by allowing proactive adjustments to ensure proper pipe positioning and laying when laying the pipeline from a floating vessel in a catenary curve in the ocean without damage to the pipeline. Damage-free pipelaying in different conditions, such as pipe size, bend, water currents would have been obtained Monitoring the forces would prevent expensive maintenance problems later by allowing proactive adjustments to ensure proper pipe positioning and laying.

Further Re claim 2: Guide rollers including axes of rotation inclined toward one another in a plane perpendicular to the tower, are taught in Nolan Fig 6.

Further Re claims 3-4 and 6: Guide rollers freely rotatable on bearings and extending at least ¼ revolution, and/or substantially all around the path of

the pipeline are shown in Nolan Figs 9 (176, 178, 180) and Fig 10 (36) as well as discussed on page 11 1st two paragraphs and claim 9, page 25.

Further Re claims 5 and 45-46: A flared tower as described is shown in Nolan Fig 3 and 12a-12d. The lower guide assembly is considered to include everything below bracketed section {34] in Fig 1. The angle of flare increases in the direction of pipeline travel during laying in the section between "68" and "88".

Further Re claims 24-25 and 36-41: Adjusting the vessel operation or pipeline operation in dependence upon the monitoring is taught by Jones in col 26 line 69 - col 27 line 35, Figs 17-20, and in much greater detail continuing through column 37. The "movement of the vessel" would inevitably involve the speed or direction of the travel of the vessel.

Further Re claims 27 and 35: A control station (150) of some type to monitor forces and provide data for operation adjustments is shown in Fig 24 of Jones.

Further Re claims 28-29: Jones teaches in col 21 lines and Fig 9 that the force monitoring means' signals can be used to operate a piston and cylinder arrangement via a hydraulic supply and control valve station:

(135) The segment 13a is provided with a plurality (in this case two) longitudinally displaced, vertical load sensing units 86 and 87 which are associated with longitudinally spaced pipe cradling, roller units 85a and 85b. The two vertical load sensing units 86 and 87 are substantially identical and illustrated in FIGS. 10, 11 and 14.

(136) Thus, for example, as shown in FIG. 14, load cell unit 86 comprises a load cell or transducer 88 which is fixedly attached on the top of a cross member 77c of pontoon segment 13a by a mounting bracket 89. Obviously, however, other load transducers of an hydraulic, pneumatic, mechanical or electrical nature may be employed. In lieu of hydraulic load cells electronic type load cells may be employed, suitably modified for underwater use.

(137) A force transmitting U-shaped, bracket 90 comprising legs 90a and 90b

and an end member 90c is pivotally mounted on horizontally extending shaft means. Thus, shaft 91a connects leg 90a to a bracket 89a while shaft 91b connects leg 90b to a bracket 89b. Bracket means 89a and 89b are connected to, and extend aft from, cross member 77d.

(138) Force-transmitting bracket 90 has its end portion 90c disposed beneath, and in supporting engagement with, a bracket 92 which in turn supports roller unit 85a.

(139) A downwardly facing, force transmitting face 93 of bracket 92 is disposed in force transmitting engagement with load cell 88 and is located vertically between this load cell and roller unit 85a.

(140) Bracket 90 will pivot downwardly about coaxial shafts 91a and 91b in accordance with the pipeline load imposed through roller assembly 85a on bracket 92 and thus transmit an indication of this load to the load cell 88. This indication of load may be then relayed to an appropriate, monitoring or control station on the lay vessel 11 as an hydraulic, pneumatic, electrical, or mechanical signal.

(141) By monitoring the operation of the load cells 88 associated with the load cell stations 86 and 87, an operator or control system on the lay vessel 11 may readily determine the condition of vertical load interaction between the pipeline and the lower or outermost stinger extremity. The term "vertical," as here used, is employed in a general sense encompassing the generally vertical vector involved in the normal or perpendicular interaction between the pipeline and load cell stations 86 and 87, even though this normal interaction itself is inclined relative to a vertical direction.

(142) Thus, for example, when the load cell 88 at the load station 86 indicates that no pipeline load is being transmitted to this station, the operator or control system knows that the tension exerted on the pipeline is such as to hold the pipeline out of supporting engagement with the roller station 85a or that the stinger has dropped. An operator or control system, upon detecting that the pipeline was no longer being supported by the roller station 85a, would be forewarned of impending excessive separation between the stinger 12 and the pipeline.

And page 11 lines 20-35 teach that a piston and cylinder are known hydraulically actuated assemblies for inducing convergence and separation:

(30) First motor means, comprising hydraulically actuated, linearly reciprocable, piston and cylinder assemblies 27 and 28 serve to move the frame 20 toward and away from the frame 21 so as to induce separation or convergence of the wheel means 23 and 26. Convergence of the frames 20 and 21, with the pipeline portion 4a disposed between the wheel units 23 and 26, causes the wheel units to compressively engage generally opposite upper and lower sides of the pipeline portion 4a. The degree of compression exerted on pipeline portion 4a by the motor means 27 and 28 may be selectively varied and adjusted. As will here be appreciated, the ultimate degree of compression exerted on the pipeline by the wheel units 23 and 26, as a result of the operation of motor means 27 and 28, will be limited by the inflation pressure of wheel units 23 and 26.

Further Re claims 30 and 34 and 42-43: Associating force monitoring means with guide rollers has been discussed above. It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have had monitoring means on respective sets of rollers, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8, especially since a bending pipe would be expected to have varying forces along its length and thus multiple measurements would obviously be needed.

Further Re Claims 15-18 and 31-33: Jones further shows in paragraphs 127-128 and 512-518 (below) that multiple set of guide rollers are evenly spaced and used below sea level to resist lateral movement and more easily form a curve when the pipe is being guided thru the water. The spacing and number of sets would be determined by pipe diameter, laying radius, and site conditions in order to help the pipeline to resist lateral movement and more easily form a curve when the pipe is being guided thru the water despite sea currents and ship movement. *127) As is shown in FIG. 10, the cross members 77 may serve to support longitudinally aligned and longitudinally spaced, pipe cradling roller assemblies 85. These roller assemblies are described, for example, in the aforesaid Rochelle et al. U.S. Pat. No. 3,507,126 and in the aforesaid Lawrence U.S. Pat. No. 3,390,532. These roller assemblies preferably support pipeline 1, with the pipeline centerline disposed beneath the center of buoyancy of segments 71 and 73.*

(128) The roller assemblies 85, along with pipe cradling roller assemblies mounted on the ramp 17 of lay barge 11, serve to support the underside of the pipeline, while imposing impedance to pipeline lateral movement, and while stabilizing the pipeline during the laying operation as pipe segments move downwardly from the lay barge, over the stinger 12, and toward the ocean

surface 2.

512) Where it is necessary to adjust the elevational position of the stinger 12, this may be accomplished by vertically adjusting the position of pivot unit 48. Alternatively, a desired modification in elevation of the pipeline in the transition zone between the vessel 11 and the stinger 12 could be effected by selectively adjusting the elevation of pipe cradling roller units on the ramp 17, in the manner generally described in the aforesaid Lawrence U.S. Pat. No. 3,390,532. The vertical adjustment of the pipeline in this transition zone may also entail the adjustment of elevation of the hitch unit 48, as well as adjustments in elevation of one or more pipe supporting cradles on the ramp 17.

(513) For the purpose of this disclosure, reference has been made to vertical load sensing means and lateral load sensing means located on the outermost stinger segment. It is contemplated, however, that such sensing means may be incorporated on several, or all, of the stinger segments.

(514) If a unitary stinger is employed, such as that described in the aforesaid Lawrence U.S. Pat. No. 3,390,532, such vertical and lateral load sensing means may be distributed longitudinally along the unitary stinger.

(515) By providing sensing means of this nature, distributed entirely or substantially along a stinger, enhanced operator control is provided. With this arrangement, an operator may be able to anticipate serious deviations in vertical and lateral pipeline forces. Further, with such multiple condition sensing stations an operator, through monitoring of all of the stations, might be better able to selectively adjust the intensity and/or rate of condition correcting thrust vectors.

(516) Where a series of longitudinally displaced, lateral load cell units is provided, these load cell units could be positioned so as to define an aft directed, laterally diverging path, the peripheries of which are disposed on opposite lateral sides of the pipeline buoyantly supported by the stinger. With this arrangement, the spaced lateral load cell units on each side of the pipeline would generally define an allowable bending arc, so as to yield correction indicating signals only when lateral bending in excess of the allowable was developed.

(517) In the described embodiment, deviations with respect to tension and lateral interaction have been detected directly in the form of monitored force deviations. However, indications of force deviation may also be detected by monitoring the positioning of the pipeline relative to the floating vessel means.

(518) As will also be apparent, vessel hull shapes other than that described might be employed in practicing the invention. It is also feasible that tension motivating systems other than hydraulic systems might be employed.

9. Claims 7-11 are also rejected under 35 U.S.C. 103(a) as being unpatentable over Nolan in view of Jones as applied above and further in view of standard bearing design as documented by the USPTO classification definitions

for Class 384, Bearings. Examiner's classification schedule was printed in Dec 2000, but the class 384 classification codes have been in use since at least 1996. Nolan in view of Jones as applied above teaches all the elements except resilient bearings. Examiner took Official Notice that resilient bearings are a known bearing design and the choice of bearing properties would be a design choice based on application parameters. Applicant has requested support, and examiner cites the USPTO Classification Schedule for Bearings. Subclasses 10, 37, 119, 125, 196, 198, 202, 215, 231, and numerous other subclasses provide for resilient roller bearings; subclasses 24, 38, 57, 107, 142, 178-180, 197, 263-264, and numerous other subclasses provide for resistant to displacement bearings. It would have been obvious to one of ordinary skill in the art, having the teachings of Nolan and ordinary skill in the art before him at the time the invention was made, to modify Nolan in view of Jones as applied above to include resilient bearings resistant to displacement as required in order to obtain bearings suitable for real-world conditions that do not lock up or prematurely fail when forces not parallel to the bearing axis are applied. Further, It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have selected bearings with resilience and resistance to displacement in the range required to handle large pipes being laid in the ocean, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. *In re Aller*, 105 USPQ 233. One would have been motivated to make such a combination because longer life and lower maintenance costs of

both the bearings and pipeline would have been obtained, particularly important when at sea where unlimited spare parts are not available.

10. Claims 12-14 are also rejected under 35 U.S.C. 103(a) as being unpatentable over Nolan in view of Jones as applied above in view of common knowledge in the art, as further documented by Brown, EP 000657670 A2.

Re claims 12-14: Adjustable tower inclination is taught in pages 10-12, 19-20 and Figs 12a-12d and claim 11. The lower guide arrangement is secured to the tower assembly in Nolan Figs 12a-12d. Once the tower inclination is suitable, it is obviously fixed in place as shown in Nolan Figs 12a-12d. The exact angle of incline would be a design choice based on application parameters. Applicant has requested a reference in support of this. Examiner believes that Nolan shows this, but is also providing Brown as additional documentation. Brown in col 7 lines 40-43 teach that the tower inclination is adjustable and can also be fixed at between 0 and 15 degrees from vertical, which would be a 75 to 90 degree inclination from horizontal, well within applicant's range. Note that Nolan Figs 12a-12d obviously show an angle between 45-90 degrees to the horizontal. It would have been obvious to one of ordinary skill in the art, having the teachings of Nolan in view of Jones as applied above and ordinary skill in the art as evidenced by Brown before him at the time the invention was made, to modify Nolan in view of Jones as applied above to include adjustable tower inclination as required in order to obtain pipe laying at different depths and for varying distances, which would result in angular differences. One would have been motivated to make such a combination because flexibility to adapt to site

conditions would have been obtained, particularly important when at sea where site control is difficult to accurately predict or control.

Response to Arguments

11. Applicant's arguments with respect to all claims have been considered but are moot in view of the new ground(s) of rejection. However, since some arguments can apply to the new rejections, examiner addresses these below.

12. In response to applicant's argument that Nolan and Jones is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, both are dealing with laying underwater pipe from the ocean surface, involving bending the pipeline which will stress the pipeline. Monitoring and controlling the forces in any pipeline that forms a catenary curve in the ocean, subject to currents, vessel movements, etc., would be applicable to both methods as the problems are similar.

13. Documentation has been provided where examiner took Official Notice of common knowledge in the art and standard bearing designs.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine W Mitchell whose telephone number is 703-305-6713. The examiner can normally be reached on Mon - Thurs 10 AM - 8 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J. J. Swann can be reached on 703-306-4115. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

17. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kwm
9/9/2004

ROBERT J. SANDY
PRIMARY EXAMINER